The cellular telephone data communication system and method involves the use of a mobile data processing interface and a cooperating static data processing interface to effectively transmit data over a cellular telephone system. Each data processing interface includes a processor which operates in the transmitting mode to add an error control correction data format to data received from an external data source. The data is divided into packets and provided to a modem which is uniquely operated to eliminate the action of the modem scramble system and to remain active in spite of a carrier signal loss. The modem is deactivated or disconnected by a disconnect signal from the processor, and when carrier signal loss occurs, this disconnect signal is provided only after the lapse of a delay period without the resumption of the carrier signal. The error control correction data format causes a receiver to evaluate the received data for error and to retransmit an acknowledgment signal for each acceptable packet of received data. In the absence of an acknowledgment signal, the processor will again provide a data packet to the modem for retransmission. Also, the processor will determine the frequency of error in the received data from the acknowledglment signals and subsequently adjust the data packet size in accordance with this error frequency.